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WOOD ANATOMY OF THE NEOTROPICAL SAPOTACEAE. XVI. PARALABATIA.(U)
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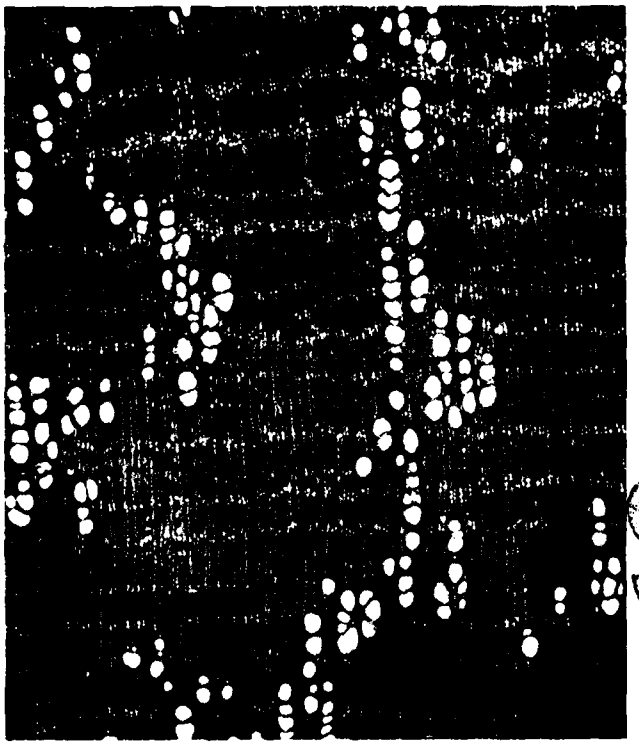
XVI. PARALABATIA

RESEARCH PAPER FPL 360

FOREST PRODUCTS LABORATORY
FOREST SERVICE
U.S. DEPARTMENT OF AGRICULTURE
MADISON, WIS.

1980



Abstract

Paralabatia is a small genus of five or six species ranging from the Amazon to the West Indies. From the anatomical standpoint the genus as constituted by Aubréville forms a group of closely related species. In marked contrast the four species cited by Baehni belong to four different anatomical groups. The woods of Paralabatia are somewhat similar to those of Neoxythece but can be readily distinguished by the smaller pores and shorter vessel members characteristic of Paralabatia.

Preface

The Sapotaceae form an important part of the ecosystem in the neotropics; for example, limited inventories made in the Amazon Basin indicate that this family makes up about 25 percent of the standing timber volume there. This would represent an astronomical volume of timber but at present only a very small fraction is being utilized. Obviously, better information would help utilization--especially if that information can result in clear identification of species.

The Sapotaceae represent a well-marked and natural family but the homogeneous nature of their floral characters makes generic identification extremely difficult. This in turn is responsible for the extensive synonomy. Unfortunately, species continue to be named on the basis of flowering or fruiting material alone and this continues to add to the already confused state of affairs.

This paper on Paralabatia is the sixteenth in a series describing the anatomy of the secondary xylem of the neotropical Sapotaceae. The earlier papers, all by the same author and under the same general heading, include:

I. Bumelia--Res. Pap. FPL 325
II. Mastichodendron--Res. Pap. FPL 326
III. Dipholis--Res. Pap. FPL 327
IV. Achrouteria--Res. Pap. FPL 328
V. Calocarpum--Res. Pap. FPL 329
VI. Chloroluma--Res. Pap. FPL 330
VII. Chysopyllum--Res. Pap. FPL 331
VIII. Diploon--Res. Pap. FPL 349
IX. Pseudoxythece--Res. Pap. FPL 350
X. Micropholis--Res. Pap. FPL 351
XI. Prieurella--Res. Pap. FPL 352
XII. Neoxythece--Res. Pap. FPL 353
XIII. Podoluma--Res. Pap. FPL 354
XIV. Elaeoluma--Res. Pap. FPL 358
XV. Sandwithiodoxa--Res. Pap. FPL 359

Publication in this manner will afford interested anatomists and taxonomists the time to make known their opinions and all such information is hereby solicited. At the termination of this series the data will be assembled into a single comprehensive unit.

WOOD ANATOMY OF THE NEOTROPICAL SAPOTACEAE

XVI. PARALABATIA

By

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Introduction

The small genus Paralabatia was established by Pierre in 1890 and like most genera of the Sapotaceae has been the subject of much controversy. It soon became submerged in the overwhelming genus Pouteria where a number of current authors still maintain it. The type of the genus is Paralabatia dictyoneura (Griseb.) Pierre based on Sideroxylon dictyoneura Griseb.

In 1961 Aubréville (1)[3/] reinstated Paralabatia dictyoneura and added three new combinations: P. chrysophyllifolia (Griseb.) Aubr., P. parviflora (Benth) Aubr., and P. ramiflora (Mart.) Aubr. In 1963 (2) he made the new combination P. durlandii (Standl.) Aubr., and in 1972 (3) described two new species, P. casiquiarensis Aubr. and P. orinocensis Aubr.

Baehni (4) had included Paralabatia in Pouteria but in 1965 (5) he recognized Paralabatia with the type species dictyoneura. The following new combinations were made: P. acutangula (Ducke) Baehni based on Sideroxylon acutangulum Ducke or Micropholis acutangula (Ducke) Eyma or Pouteria acutangula (Ducke) Baehni or the new genus Paramicropholis acutangula (Ducke) Aubr. and Pellegr.; P. parviflora (Benth.) Baehni (note difference in authorship from above); and P. capiri (A. DC.). Baehni based on Mastichodendron capiri (A. DC.) Cronq. Anatomically the four species constituting the genus Paralabatia (sensu Baehni) form a very heterogeneous and untenable grouping. The latest transfer in this series was made by Lundell (6) when he transferred Pouteria or

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1/ Pioneer Research Unit, Forest Products Laboratory.

2/ Maintained at Madison, Wis., in cooperation with the University of Wisconsin.

3/ Underlined numbers in parentheses refer to literature cited at the end of this report.

Paralabatia durlandii to his new genus Peteniodendron making the new combination Peteniodendron durlandii (Standl.) Lundell.

Record (7) provided a brief description based on several specimens of dictyoneura. His statement "smallest vessels with spiral thickenings" was not confirmed in this study but striations were occasionally observed.

Description

Based on 18 specimens representing four species (table 1).

General: Sapwood pale brown and sharply demarcated from the dark brown heartwood. Growth rings usually indistinct, defined by a narrow band of flattened wood fibers with associated parenchyma. Wood heavy to very heavy with an average specific gravity of 0.94; the range of individual specimens 0.74 (durlandii) to the extreme of 1.23 (heartwood of dictyoneura).

Anatomical:

Pores in clustered-echelon arrangement (dictyoneura) and in radial-echelon in the other species (figs. 1, 3, and 4). Pores solitary but most commonly in radial multiples of 2 to 5, infrequently longer (6 to 9). Maximum pore diameter in individual specimens ranges from 79 µm to 142 µm; smallest in casiquiarensis (79 µm), 95 µm in durlandii, and largest in dictyoneura and ramiflora (142 µm).

Vessel member length averages 620 µm for all specimens with a range between specimens of 430 µm to 760 µm. Inter-vessel pit diameters 4 µm in casiquiarensis, 4 to 6 µm in dictyoneura, 6 to 8 µm in durlandii, and 8 to 10 µm in ramiflora. Tyloses thick-walled to sclerotic in the dense heartwood. Perforations simple.

Axial parenchyma banded, (1) 2 to 3 (5 to 6) seriate; the seriation within a given band usually variable (fig. 2). Few cells with brown contents; silica not observed. Cells very thick-walled in the dense heartwood.

Wood rays 1 to 3 seriate; heterocellular. Maximum height of 2 to 3 seriate portion of the rays variable and ranging from 95 µm to 631 µm; inconsistent within species and of no diagnostic value. Silica common in the wood rays and commonly confined to cells with brown contents which embed and frequently obscure the particles. In the sapwood the particles are spheroidal or somewhat irregular, attaining diameters of 20 µm; in the dense heartwood may attain a diameter of 35 µm

Figure 1.--Paralabatia dictyoneura illustrating the clustered-echelong pore arrangement (Fors 91) X 30.

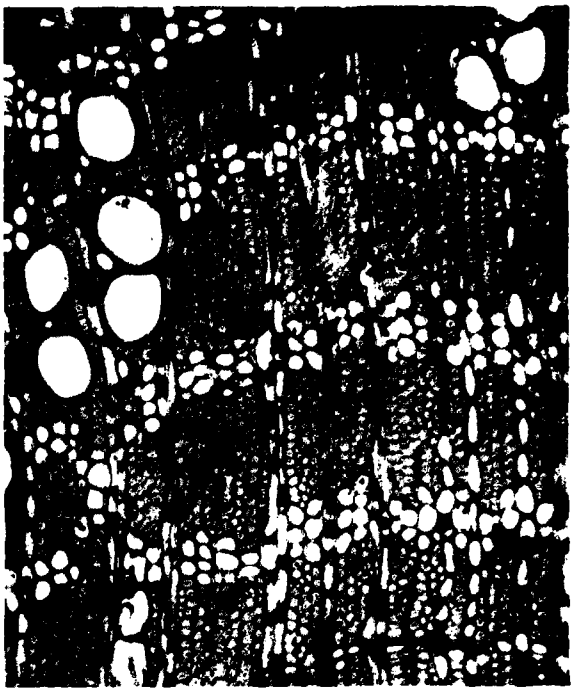

Figure 2.--Same as figure 1, illustrating parenchyma detail X 110.

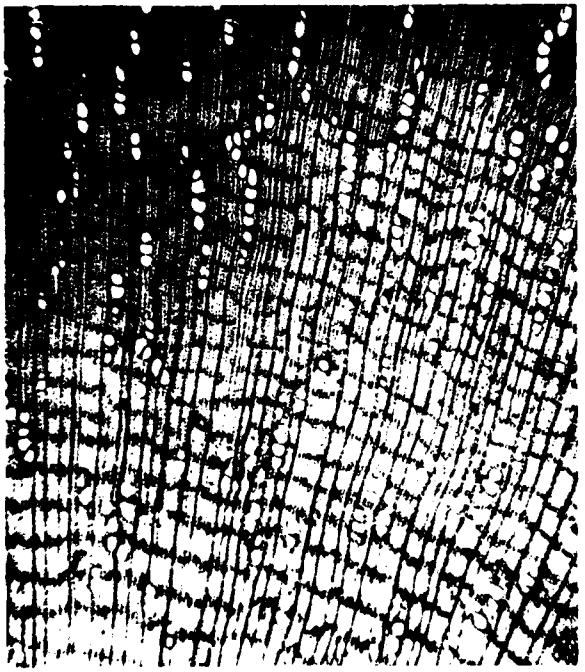

Figure 3.--P. casiquiarensis, pore and parenchyma distribution (Wurdack-Adderley 43172) X 30.

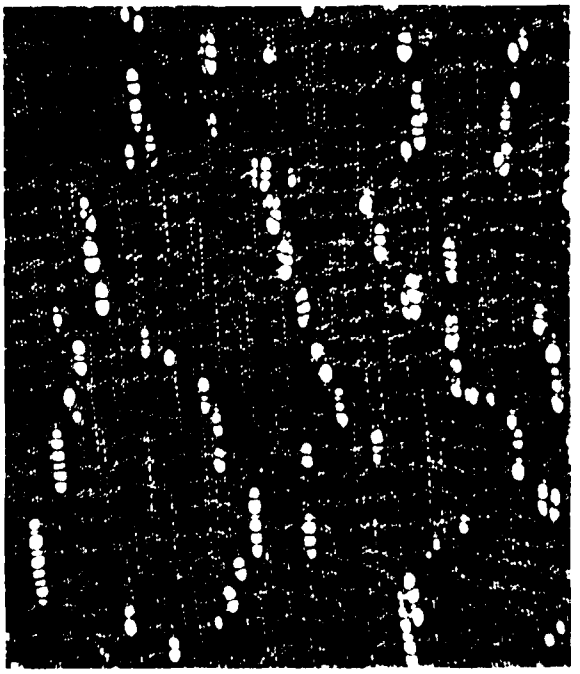

Figure 4.--P. durlandii, pore and parenchyma distribution (Cedillo 307) X 30.

Table 1.--Wood specimens of *Paralabatia* examined

Species	Collector and No.	Origin	Wood collection No.
casiquiarensis Aubr.	Wurdack-Adderley 43172	Venezuela	SJR-54110
dictyoneura (Griseb.) Pierre (includes fuertesii Ubr.)	Bucher 52	Cuba	SJR-16230
	Bucher 224	Cuba	SJR-19999
	Matthews-Crosby 4	Cuba	SJR-9161
	Fors 91	Cuba	MAD-13796
	Commercial	Cuba	SJR-5015
	Barbour 37	Haiti	SJR-8996
	Cowles 702	Puerto Rico	SJR-47819
	Scarff 4	Dominican Republic	SJR-32187
	Scarff 12 E	Dominican Republic	SJR-35353
	Scarff s.n.	Dominican Republic	SJR-32323
	Schiffino L 2	Dominican Republic	SJR-35201
	Schiffino C 34	Dominican Republic	SJR-35173
durlandii (Standl.) Aubr.	Steyermark 44514	Guatemala	MAD-7658
	Cedillo 307	Mexico	MAD-30646
ramiflora (Mart.) Aubr.	Filho-Rizzini 496	Brazil	RB-5952
	Filho et al. 298	Brazil	RB-4952
	Pires 16042	Brazil	MG-16042

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(clinker type). Silica content of the wood ranges from 0.11 percent in ramiflora to 1.42 percent in dictyoneura. Average silica content of the 12 specimens chemically analyzed was 0.77 percent.

Wood fibers thick-walled, the lumina minute in the dense heartwood. The fiber length averages of individual specimens range from 1.11 mm to 1.56 mm with an overall average of 1.38 mm. Vascular tracheids abundant.

Record (8) noted the occurrence of spiral thickenings in the smallest vessels but the presence of this feature could not be confirmed in this study. Striations were observed in tension wood material.

Diagnostic features: Wood light brown (sapwood) or dark brown in the case of heartwood; heavy to very heavy. Pores in cluster-echelon arrangement (dictyoneura) or radial-echelon in the other species. Parenchyma banded and showing rather prominently on tangential surfaces. Silica present in wood rays. Could be confused with Neoxythece but in this group the pores are larger in diameter and the vessel members are appreciably longer.

NOTE: Wood of Paralabatia parviflora (Benth.) Aubr. was not available for this study but Aubréville (1) made Pouteri ovata A. C. Smith a synonym. Wood from the type tree of Pouteria ovata (Froes and Krukoff 1841) is available to the author. If Pouteria ovata is truly a synonym of Paralabatia parviflora it would appear that parviflora does not belong in Paralabatia.

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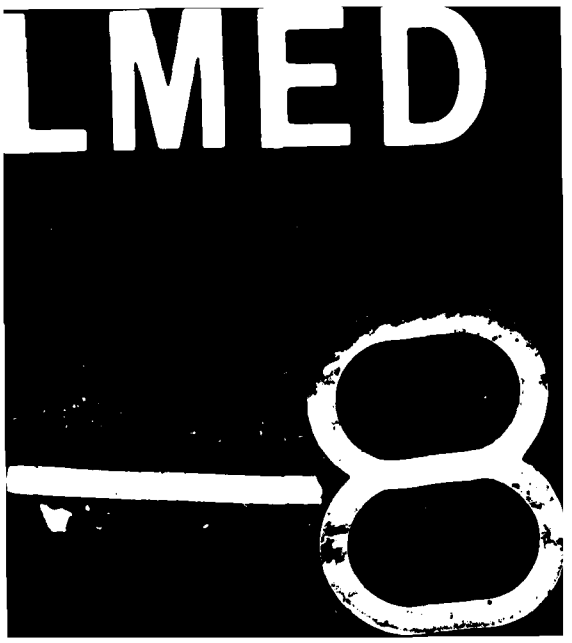
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